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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/731,895	12/08/2000	Hyeon-Ho Son	8733.337.00	1204

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MCKENNA LONG & ALDRIDGE LLP
1900 K STREET, NW
WASHINGTON, DC 20006

EXAMINER

NGUYEN, DUNG T

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

A

Office Action Summary

Application No.

09/731,895

Applicant(s)

SON, HYEON-HO

Examiner

Dung Nguyen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
 4a) Of the above claim(s) 10-14, 19-21, 27-31 and 35 is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-4, 6-9, 15-18, 22-26, 32-34 and 36-39 is/are rejected.
 7) ☒ Claim(s) 5 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 12/8/04

- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
 5) ☐ Notice of Informal Patent Application (PTO-152)
 6) ☐ Other: _____

DETAILED ACTION

Applicant's amendment 12/08/2004 has been received and entered. By the amendment, claims 1-9, 15-18, 22-26, 32-34 and 36-39 are now pending in the application.

Applicant's arguments dated 12/08/2004 have been considered but are moot in view of the new ground(s) of rejection:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6-7, 15, 22-24, 32-34, 36-37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young, US Patent No. 6,441,873, in view of Takeda et al., US Patent No. 6,724,452.

Regarding the above claims, Young's figures 1-2 which disclose a liquid crystal display (LCD) device (figure 1) comprising:

- . first and second substrate (12, 11);
- . gate and data lines (20, 21) formed on the first substrate (12);
- . a switching device (thin film transistor TFT 18);
- . a pixel electrode (45) formed on the first substrate (12), wherein the pixel electrode having depressions (50) and the side edge portions (bordering pixel 10 corresponding to the data line 21) being bent toward the second substrate (11) (i.e., convex shape);

Art Unit: 2871

. a common electrode (16) formed on the second substrate (11), wherein a first distance of a central region of the pixel electrode from the common electrode is greater than a second distance of the side edges of the pixel electrode from the common electrode (figure 1);

. a center electrode (35) formed below slits (50) and same layer as data line (21), wherein the center electrode (35) electrically connected to the common electrode (16) (according to driving LCD);

. a twisted-nematic liquid crystal layer (15) (col. 6, ln. 57).

Young, however, does not disclose a slit being formed on the pixel electrode and multiple domains within the pixel region during an operation. Takeda et al. do disclose that slits can be formed in the pixel electrodes, so as a multi-domain pixel would be formed (e.g., between side edge pixel electrode and a common electrode) for improving the viewing angle in an LCD device (col. 86, lines 25-31). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to employ slits in stead of depressions in the Young's device as shown by Takeda et al. in order to improve display characteristics (e.g., viewing angle) in an LCD device (col. 86, lines 25-31).

3. Claims 8-9, 16-18, 25-26 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young, US Patent No. 6,441,873, in view of Takeda et al., US Patent No. 6,724,452, further in view of Applicant admitted prior art (APA), figure 5.

Regarding claims 8-9, 16-18 and 26, the modification to Young discloses the claimed invention as described above except for a rib forming on the second substrate. APA's figure 5 does disclose a rib (19) formed a common substrate (17) to define multi-domains. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to

Art Unit: 2871

employ a rib on a substrate opposed to a pixel electrode substrate as shown by APA in order to improve a wide-viewing angle in an LCD device.

Regarding claims 25 and 38, the modification to Young disclose the LCD having the rib forming on the second substrate as described above; the modification to Young does not disclose the LCD device including at least two ribs. One of ordinary skill in the art would have realized the desire to form at least two ribs over pixel electrodes for forming multi-domains in the pixel electrode (e.g., more than four domains in each pixel electrode). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the Young 's LCD device as a multi-domain LCD device because it is a common practice in the art to improve a wide-viewing angle in a multi-domain LCD device.

Allowable Subject Matter

1. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
2. The following is a statement of reasons for the indication of allowable subject matter: none of the prior art of record discloses or suggests alone or in combination that an LCD device in which a pixel electrode having a slit and a convex-shaped side edge, a center electrode forming below the slit and same layer as a gate line as set forth in claim 5.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

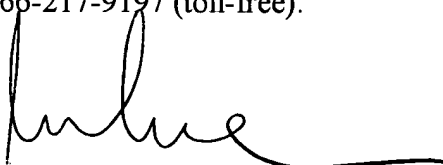
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 571-272-2297. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DN
04/16/2005



Dung Nguyen
Primary Examiner
Art Unit 2871